

## Signs and Symptoms

## Diabetes



Harvard Health Publications



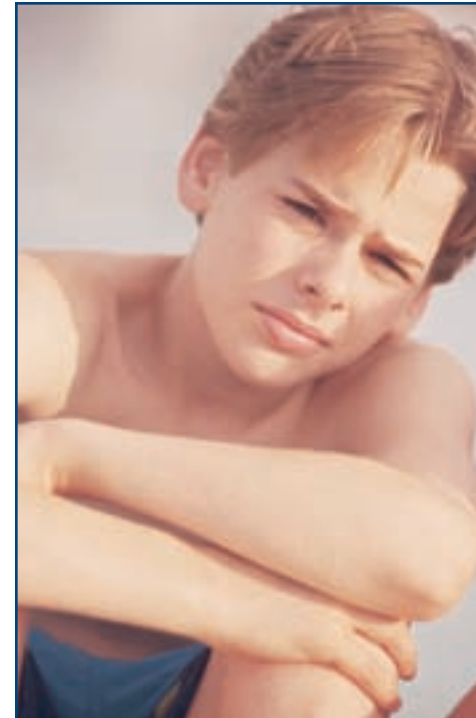
- What Causes Diabetes?
- What Are the Symptoms?
- When Should I Get Help?
- What Can I Expect at the Doctor's?
- What If I Don't Get Help?
- What Steps Can I Take?

## What Causes Diabetes?

There are two major types of diabetes. In both types, the level of a sugar called **glucose** rises in the blood to unusually high levels. Why does this happen? The cells in your body need glucose for energy. When you eat carbohydrates, they are digested to make glucose. The glucose then moves from your gut into your bloodstream. The circulation of blood carries glucose to all the cells in your body. For the glucose to provide energy to your cells, it needs to get inside the cells. For that, you also need **insulin**—a hormone that is made by the pancreas. Insulin helps glucose enter your cells.

- With type 1, the symptoms usually develop quickly, within days or weeks.
- With type 2, symptoms may be intermittent at first, appearing some days but not others.

Left untreated, both types of diabetes can cause major health problems. But with proper management, complications from diabetes can be delayed and possibly even prevented.



## Type 1 Diabetes

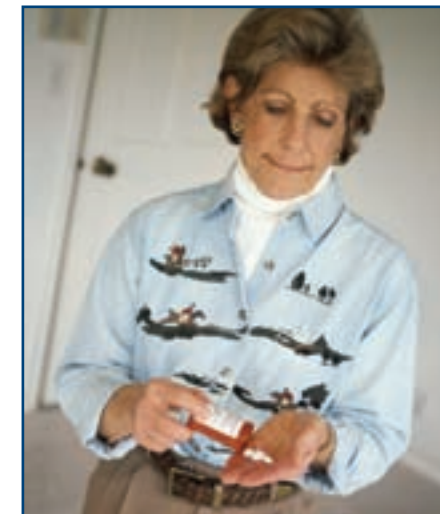
Type 1 is sometimes called “juvenile” or “early onset” diabetes because it usually develops in childhood or adolescence, although it can begin in adulthood. With type 1 diabetes, the body's immune system attacks the cells in the pancreas that produce insulin. The blood sugar level starts to rise, and the symptoms of type 1 diabetes begin. People with type 1 diabetes need to take insulin to make up for the insulin their bodies cannot make naturally.

## Type 2 Diabetes

This type of diabetes tends to develop after age 40, although it is becoming more common in younger people, possibly due to rising rates of obesity in our society. Type 2 diabetes accounts for about 90 percent of all diabetes cases.

In the first stage of type 2 diabetes, the pancreas makes a normal amount of insulin, but the cells cannot use it properly and require an increased level to function. This is called insulin resistance. To meet the body's needs, the pancreas increases insulin production, and the blood sugar level stays normal. After many months or years, though, the pancreas cannot make enough insulin to maintain the increased demand. The blood sugar level starts to rise, and the symptoms of type 2 diabetes begin.

People with type 2 diabetes often need to take medications that lower their blood sugar level. Some may also need to take insulin.

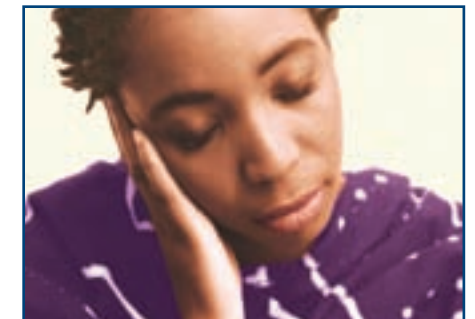


## What Are the Symptoms?

Diabetes increases the glucose level in the blood, resulting in hyperglycemia. You may notice that you are constantly thirsty and frequently have to urinate. Other common symptoms of increased glucose level in the blood are listed below.

## Common Symptoms of Diabetes

- Frequent urination
- Excessive thirst
- Unexplained weight loss
- Increased appetite
- Fatigue, irritability
- Dizziness, lightheadedness
- Blurry vision
- Tingling or numbness in hands and feet
- Urinary infections
- Vaginal yeast infections



## When Should I Get Help?

If you begin passing large amounts of urine and feel unusually thirsty, tell your doctor immediately.

Check with your doctor if you:

- Lose more than 10 pounds without trying to.
- Often get lightheaded when you stand up.
- Have new blurring of vision.
- Feel tingling in your hands and feet.
- Feel unusually tired for more than a month, but you are not under stress, have not been working unusually hard, and taking a few days off does not relieve the problem.

### If You Have Diabetes

If you already have been diagnosed with diabetes and have these symptoms, check your blood sugar right away. If the level is above 200, contact your doctor. If you don't have a home blood sugar monitor, contact your doctor to make sure your blood sugar is being controlled.

## What Can I Expect at the Doctor's?

Your doctor will probably perform one of three simple blood tests:

- A random plasma glucose test. This measures the glucose (sugar) level in your blood. If your level is above 200 mg/dL (milligrams per deciliter), you probably have diabetes, especially if you also have symptoms.
- A fasting plasma glucose test. This is the standard diagnostic test for diabetes. It requires fasting for at least 8 hours before the test, so that food you've eaten is less likely to affect the results. A result of 126 mg/dL or above indicates diabetes. If this is your result, get tested again to make sure.
- An oral glucose tolerance test. This test is not often ordered because it is time-consuming and cumbersome. First, your blood sugar is tested after you fast overnight. Next, you drink a sugary solution and your blood is tested again 2 hours later. If the second test shows a glucose level of 200 mg/dL or higher, you have diabetes.



## What If I Don't Get Help?

In most cases, health problems arising from or increased by diabetes pose the greatest threat to health and quality of life. Some of the most common complications are discussed here.

### Complications of Diabetes

- Whether you have type 1 or type 2 diabetes, postponing treatment could result in hyperglycemia. This is dangerous. The symptoms of hyperglycemia are those of diabetes itself. Extreme thirst, frequent urination, weight loss, fatigue, and irritability are among the most common. Severe, untreated hyperglycemia can eventually lead to dehydration, confusion, loss of consciousness, coma, and even death.
- Arterial disease. Over time, diabetes helps cause atherosclerosis (sometimes called "hardening of the arteries"). Atherosclerosis blocks the flow of blood through arteries, including those of the heart and brain. This increases the risk of heart attack or stroke.
- Vision loss. Diabetic retinopathy (ret-in-OP-pa-thee) is a major vision problem caused by diabetes. With this condition, the blood supply to the retina, the light-sensing structure in the back of the eye, is damaged. The retina tries to repair itself by sprouting new blood vessels, but these new vessels grow abnormally, often leaking blood that blocks the passage of light. In addition, scar tissue can cause the retina to detach, causing permanent vision loss if not repaired. Cataracts and glaucoma also can result from diabetes.
- Kidney disease. Also called nephropathy (neh-FROP-a-thee), kidney disease is chronic and progressive. It ultimately leads to kidney

failure, making the kidneys unable to filter enough wastes from the blood.

- Nerve damage. Also called neuropathy (new-ROP-a-thee), nerve damage caused by diabetes has widespread effects. Damage from diabetes affects the way nerve cells carry messages. There are several types of neuropathy.
- Peripheral neuropathy. This is the most common type of diabetes-caused nerve damage. It affects the nerves that extend from your spine to your arms and legs. It can cause numbness and tingling. Most important, it can cause you to overlook sores on your legs and feet, which can become worse and lead to amputation.
- Focal neuropathy. This condition causes damage to nerves of your eyes, face, arms, and legs.
- Autonomic neuropathy. This nerve damage causes abnormalities of digestion, sweating, blood pressure control when you stand up, and (in men) erections during sex.
- Damage to feet and legs. This occurs when peripheral neuropathy and arterial disease combine. If a sore goes unnoticed and not enough fresh blood reaches the site to heal the wound, a sore can become severely infected. Left untreated, amputation may be needed to remove infected tissue. Toes are most vulnerable.

## What Steps Can I Take?

In many cases, your actions can improve your quality of life. Here are a few steps you can take right now.

- To reduce the risk of developing diabetes, take care of yourself. Eat well, stay active, and maintain a healthy weight. Regular exercise greatly helps to control diabetes, even if you don't lose weight.
- To manage diabetes, follow your meal plan, test your blood sugar as often as directed, and don't forget to take your medicines.
- To prevent a serious threat to your health, don't dismiss the complications diabetes can bring. See your doctor for checkups. These help ensure that your treatment plan is working.

### For More Information

To learn more about diabetes, visit our website: [www.health.harvard.edu](http://www.health.harvard.edu)



For additional information on diabetes, contact:

American Diabetes Association  
[www.diabetes.org](http://www.diabetes.org)

National Institute of Diabetes and Digestive and Kidney Diseases.  
[www2.niddk.nih.gov](http://www2.niddk.nih.gov)

National Diabetes Information Clearinghouse.  
[www.niddk.nih.gov/health/diabetes/ndic.htm](http://www.niddk.nih.gov/health/diabetes/ndic.htm)

This brochure is not intended as a substitute for professional healthcare.

 **KRAMES**  Harvard Health Publications  
To order, call: 800-333-3032 [www.health.harvard.edu](http://www.health.harvard.edu)  
A MediMedia USA Company

© 2007 President and Fellows of Harvard College,  
10 Shattuck St., Boston, MA 02115.  
Published by Krames. All rights reserved.  
5360